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What is claimed:

1. A method of producing a phytase in fungal cells, the method comprising:

providing a polynucleotide encoding an *Escherichia coli* phytase;

expressing the polynucleotide in the fungal cells; and

isolating the expressed *Escherichia coli* phytase wherein the *Escherichia coli* phytase catalyzes the release of phosphate from phytate.

2. The method of claim 1 wherein the phytase is an *Escherichia coli* AppA phytase.

3. The method of claim 1 wherein the fungal cells are from a filamentous fungus.

4. The method of claim 3 wherein the filamentous fungus is an *Aspergillus* species or a *Neurospora* species.

5. The method of claim 1 wherein the polynucleotide is incorporated into a nucleic acid vector.

6. The method of claim 1 wherein the fungal cells are cultured in a growth medium.

7. The method of claim 6 wherein the *Escherichia coli* phytase is secreted from the fungal cells into the growth medium.

8. The method of claim 7 wherein the *Escherichia coli* phytase is purified from the growth medium.

9. The method of claim 8 wherein the *Escherichia coli* phytase is purified from the growth medium at a concentration greater than 300 U/ml.

10. The method of claim 1 wherein the *Escherichia coli* phytase has an optimum activity at a temperature range of 57 degrees C. to 65 degrees C.

11. The method of claim 1 wherein the *Escherichia coli* phytase retains at least 40% of its activity after heating the phytase for 15 minutes at 80 degrees C.

12. The method of claim 1 wherein the *Escherichia coli* phytase retains at least 60% of its activity after heating the phytase for 15 minutes at 60 degrees C.

13. A method of converting phytate to inorganic phosphate, the method comprising expressing an *Escherichia coli* phytase in fungal cells;

isolating the expressed *Escherichia coli* phytase from the fungal cells; and

contacting the isolated *Escherichia coli* phytase with phytate wherein the phytase catalyzes the release of phosphate from phytate.

14. The method of claim 13 wherein the phytase is an *Escherichia coli* AppA phytase.

15. The method of claim 13 wherein the fungal cells are from a filamentous fungus.

16. The method of claim 15 wherein the filamentous fungus is an *Aspergillus* species or a *Neurospora* species.

17. The method of claim 13 wherein the fungal cells are cultured in a growth medium.

18. The method of claim 17 wherein the *Escherichia coli* phytase is secreted from the fungal cells into the growth medium.

19. The method of claim 18 wherein the *Escherichia coli* phytase is purified from the growth medium.

20. The method of claim 19 wherein the *Escherichia coli* phytase is purified from the growth medium at a concentration greater than 300 U/ml.

21. The method of claim 13 wherein the *Escherichia coli* phytase has an optimum activity at a temperature range of 57 degrees C. to 65 degrees C.

22. The method of claim 13 wherein the *Escherichia coli* phytase retains at least 40% of its activity after heating the phytase for 15 minutes at 80 degrees C.

23. The method of claim 13 wherein the *Escherichia coli* phytase retains at least 60% of its activity after heating the phytase for 15 minutes at 60 degrees C.

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